



Panel Mount Lamp LED conversion

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TOOLS:

- [Alligator test/jumper cable set \(1\)](#)
For connecting power during testing - may use regular wire as well
- [Battery, 9V \(1\)](#)
or other 9v DC power source (for testing)
- [Desoldering Bulb \(1\)](#)
Desoldering braid may also work
- [Helping hands tool with magnifier \(1\)](#)
Optional - use to hold small parts while soldering them together
- [Soldering iron \(1\)](#)
- [Wire cutter/stripper \(1\)](#)

PARTS:

- [LED, 5mm, red \(1\)](#)
- [120-Volt Neon Red Jumbo Lamp Assembly Radioshack Part #272-710 \(1\)](#)
- [1/4W 470 ohm resistor \(1\)](#)
You may substitute a different value based on source voltage

SUMMARY

In this guide we'll take a 120v AC panel mount lamp and convert it to use an LED, allowing it to be powered from DC voltage instead of AC. If you can handle some basic soldering and desoldering, then this should be an easy project!

Step 1 — Gather the parts.



- Lamp assembly - I'm using Radio Shack part #272-710. It's inexpensive, and easy to take apart, both of which make it great for this project.
 - You don't have to use the Radio Shack lamp. You may find another assembly that works just as well - maybe in another color. 
- Resistor - I'm planning to use my lamp in a 9v DC circuit, so I've selected a 470 ohm resistor. Assuming a forward voltage of 2v for the LED, this results in 15ma of current through the LED at 9v.
 - If you want to use a different source voltage, you'll need a different resistor. I suggest checking out <http://led.linear1.org/led.wiz> for help in calculating the needed resistor if you're unsure. 
- LED - a pretty basic 5mm red LED.
 - If using a different lamp assembly, select an LED that matches the color of the assembly's lens. 

Step 2 — Disassemble the lamp.



- To disassemble the lamp assembly, hold the top firmly while twisting the base clockwise. This unlocks it from the top and you should be able to pull it away now.
- The base will have a resistor and bulb attached to the two solder terminals. Remove both by desoldering them from the terminals. There is quite a bit of solder, so a desoldering bulb or pump may work best, but braid may work as well.
- The removed bulb and resistor will not be used, and can be saved for other projects or discarded.

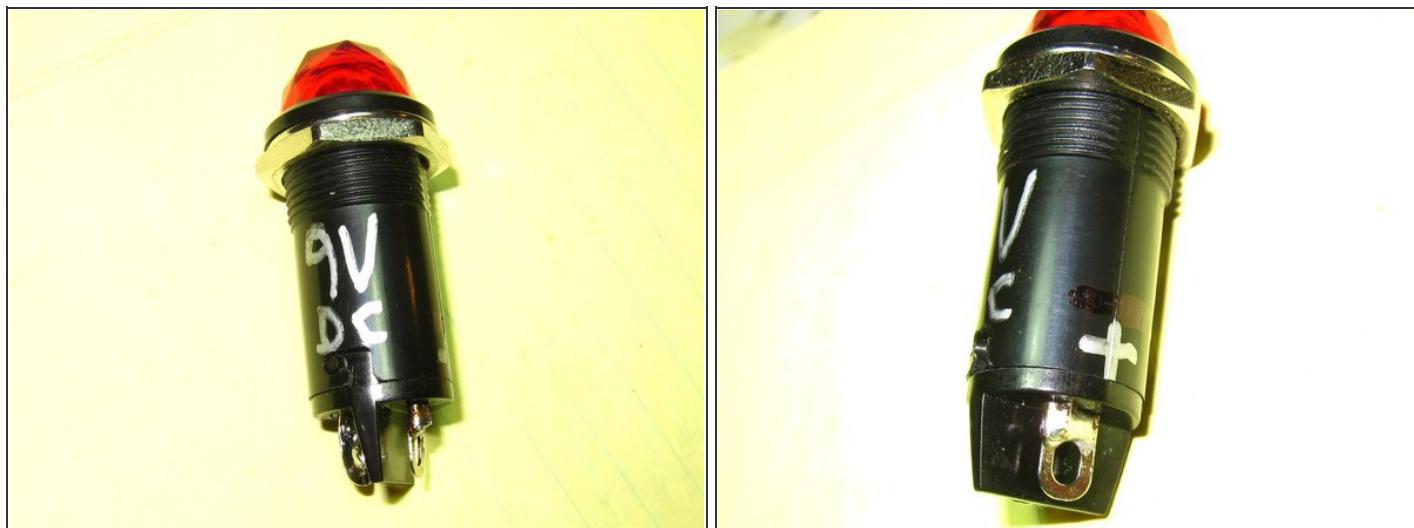


Step 3 — Solder the new resistor and LED in place.



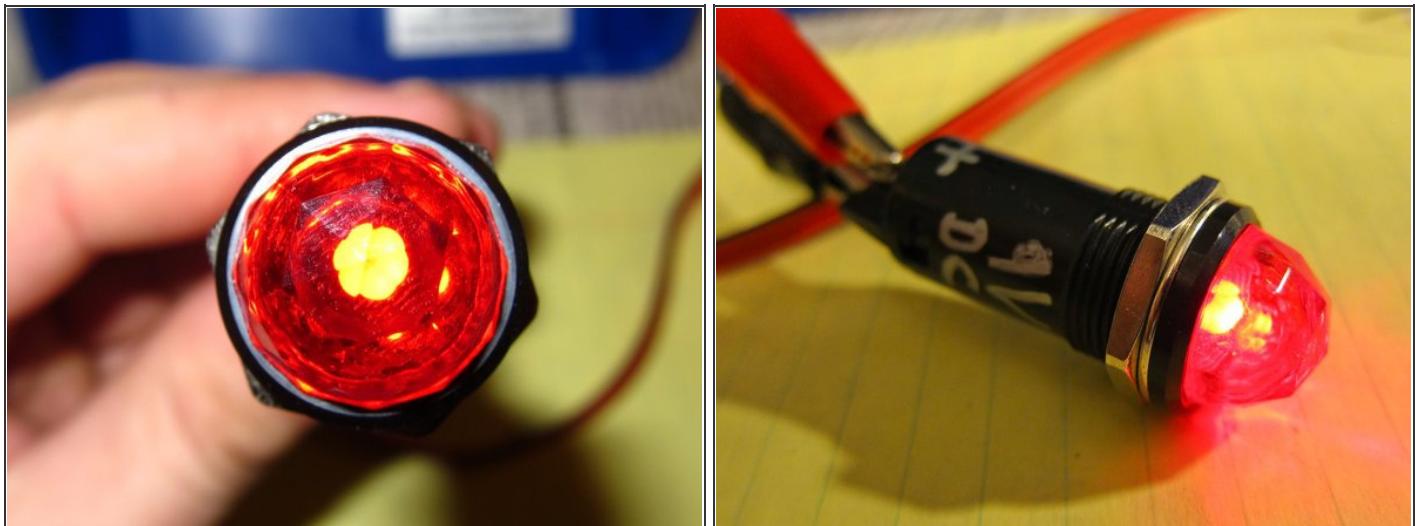
- Trim the leads on one side of the LED and resistor and solder them together.
- It doesn't matter which sides you trim - but make  sure to take note of which side of the LED is the anode and which side is the cathode. The longer lead is the anode, but this may not be true after trimming!
- Insert the soldered LED and resistor into the holes on the base where the previous bulb and resistor were installed. Try to keep the height of the LED about the same as the height of the previous bulb.
- If you have trouble inserting the new parts,  there may be some solder on the terminal(s) getting in the way, or you may need to bend the terminals to ensure that the leads can get through.

Step 4 — Reassemble the lamp.



- Insert the base into the lamp assembly, ensuring that the LED doesn't get stuck and has clearance to fit inside. Make a mental note of which side is positive (anode) and which side is negative (cathode).
- With the base firmly in place, twist it counter-clockwise to lock it to the rest of the assembly.
- Use a black marker or tape to cover the 110-125v voltage specification on the lamp assembly.
- Use a silver marker to mark the housing with the proper source voltage (9v DC in the example) and mark the terminals positive (+) and negative (-).

Step 5



- Test the lamp.
- Connect the lamp to a power source that provides the needed voltage.
 - Make sure the polarity is correct before powering it on!
- If it lights up, great! You have a working DC voltage panel lamp.
 - If it doesn't light up, check the polarity - you may have it connected backwards.
If that's not the issue, you'll have to check the soldering - is everything connected properly?



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